

**THIS OPINION WAS NOT WRITTEN FOR PUBLICATION**

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* BRUCE R. BOWMAN and PETER STASZ

---

Appeal No. 96-0935  
Application 08/157,737<sup>1</sup>

---

ON BRIEF

---

Before ABRAMS, STAAB and McQUADE, *Administrative Patent Judges*.  
ABRAMS, *Administrative Patent Judge*.

**DECISION ON APPEAL**

This is an appeal from the decision of the examiner finally rejecting claims 1 through 20, which constituted all of the claims of record in the application. Subsequently, however, the appellants canceled claims 1, 2 and 15 through 20 (Paper No. 17), and the examiner indicated that claims 3 through 9 were allowed

---

<sup>1</sup> Application for patent filed November 24, 1993. According to appellants, this application is a continuation of Application 07/902,899 filed June 23, 1992, now abandoned.

Appeal No. 96-0935  
Application 08/157,737

and claims 12, 13/12 and 14/13/12 would be allowable if recast in independent form. As a result, claims 10, 11, 13/10, 13/11, 14/13/10 and 14/13/11 are before us on appeal.

The appellants' invention is directed to a method of monitoring the respiration of a patient. The subject matter before us on appeal is illustrated by reference to claim 10, which reads as follows:

10. A method of monitoring respiration of a patient comprising:

- a. monitoring the respiration of a patient;
- b. detecting whenever said respiration being monitored is irregular;
- c. giving an alarm whenever said respiration of said patient is irregular;
- d. sensing the presence of non-physiologically induced electromagnetic interference; and
- e. providing a second alarm whenever said sensing step identifies said presence of said non-physiologically induced electromagnetic interference.

#### **THE REFERENCES**

The references relied upon by the examiner to support the final rejection are:

Brownlee et al. (Brownlee)	4,091,818	May 30, 1978
Howson et al. (Howson)	4,235,242	Nov. 25, 1980
Bowman	4,803,997	Feb. 14, 1989

Appeal No. 96-0935  
Application 08/157,737

### **THE REJECTION**

Claims 10, 11, 13/10, 13/11, 14/13/10 and 14/13/11 stand rejected under 35 U.S.C. §103 as being unpatentable over Bowman in view of Brownlee and Howson.

The rejection is explained in the Examiner's Answer.

The opposing viewpoints of the appellants are set forth in the Brief and the Reply Brief.

### **OPINION**

The objective of the appellants' invention is to provide a device for monitoring the respiration of a patient, which provides protection against the likelihood that a component failure or non-physiologically induced electromagnetic interference (EMI) generated false signals will be mistakenly assumed to be respiration signals from the patient being monitored. In essence, the method recited in the independent claim before us comprises monitoring the respiration of the patient and responding to the detection of irregular respiration by giving an alarm, and sensing the presence of EMI and providing a second alarm upon such occurrence.

The claims stand rejected under 35 U.S.C. §103, and therefore we have evaluated the rejection on the basis of the

following guidelines provided by our reviewing court: The examiner bears the initial burden of presenting a *prima facie* case of obviousness (see *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993), which is established when the teachings of the prior art itself would appear to have suggested the claimed subject matter to one of ordinary skill in the art (see *In re Bell*, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993)). This is not to say, however, that the claimed invention must expressly be suggested in any one or all of the references, rather, the test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art (see *Cable Electric Products, Inc. v. Genmark, Inc.*, 770 F.2d 1015, 1025, 226 USPQ 881, 886-87 (Fed. Cir. 1985)), considering that a conclusion of obviousness may be made from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference (see *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969)), with skill being presumed on the part of the artisan, rather than the lack thereof (see *In re Sovish*, 769 F.2d 738, 742, 226 USPQ 771, 774 (Fed. Cir. 1985)). Insofar as the references themselves are concerned, we are bound to consider the disclosure of each for what it fairly teaches one

of ordinary skill in the art, including not only the specific teachings, but also the inferences which one of ordinary skill in the art would reasonably have been expected to draw therefrom (see *In re Boe*, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966) and *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968)).

The primary reference in the rejection is Bowman, which discloses a respiration monitor method in which dual detectors are employed for determining patient breaths while rejecting cardiac artifacts. As stated in the abstract of Bowman:

The first detector examines a respiration signal at a first sensitivity for apparent breaths. The second detector examines at a second sensitivity to determine if the apparent breath was actually an artifact.

This reference was discussed in the appellants' specification, the comment being made on page 2 that

the cardiac artifact signal is explicitly sensed and processed using separate detection circuitry to ensure that the cardiac artifact is not treated as a respiration signal (emphasis added).

The appellants continue on page 2:

However, even with extensive filtering and shielding techniques, it is known that problems still exist with other sensing failures caused by electromagnetic interference (i.e. EMI) that is strong enough to interfere with the normal behavior of the monitoring system (emphasis added).

Bowman also discloses means for detecting that switch components are not operating in the required manner, in which case an alarm is sounded (column 5, lines 18 through 29).

Brownlee discloses a cardiac pacing apparatus of the type that can operate in two modes. The first of these is the demand mode, that is, in response to a patient's cardiac rate dropping below a desired level. In the second mode the rate is set to be fixed and continuous. The problem to which Brownlee is directed is that of protecting the patient from the effect of non-physiologically unduced EMI signals, such as 60 Hz, that mimic normal cardiac rates when such actually is not present, which could cause the pacer not to respond to the patient's cardiac emergency (columns 1 through 3). To solve this problem, an EMI detector is provided in addition to the controller on the pacer. Upon detection of EMI, the pacer controller is signaled to override the demand mode and switch the device to the safer, alternative, fixed and continuous mode.

In the Howson system a cardiac monitoring device is used in conjunction with the non-physiologically induced EMI signal of a pain-mitigating device, the latter of which could adversely effect the detecting capabilities of the former. To avoid this problem, a detector senses the presence of the EMI and disables

the operation of the cardiac monitor until the pain-mitigating EMI pulse has terminated.

Looking now to the language of claim 10, it appears to be uncontroverted that Bowman clearly teaches the first three steps of the claimed method. The Bowman system differs, however, in that it screens the respiratory monitor from the offending interference of cardiac artifact, which is physiologically-induced by heartbeat and blood flow through the heart, rather than from "non-physiologically produced" EMI. However, as the appellants have admitted on pages 2 and 3 of their specification, non-physiologically produced EMI also was known to adversely affect the operation of other patient monitoring systems. This is confirmed in Brownlee and Howson, both of which provide a second sensing system to detect the presence of the non-physiologically induced EMI and to act in a manner which offsets its effect.

From our prospective, in view of the knowledge in the art at the time of the appellants' invention, it would have been obvious to one of ordinary skill in the art to modify the Bowman method by also sensing the presence of non-physiologically produced EMI and sounding an alarm in such case. Considering that the use of a second alarm system is taught by Bowman, suggestion for this

modification is found in the appellants' admission that such EMI is undesirable, the secondary references in which such EMI detected by a second system is signaled to another monitoring system to avoid improper response by that other system, as well as the self-evident advantages of providing a means for offsetting the presence of an undesirable signal, which would have been known to the artisan.

With regard to step 10(e), we point out that "second alarm" is a very broad phrase, which need not be audible or even different from the first alarm, as the appellants' arguments seem to suggest. Any second detecting system necessarily would provide a second alarm of some fashion in order to accomplish its mission. To the extent that this claim is interpreted to require that the second signal be different than that of the first alarm, it is our opinion that one of ordinary skill in the art would have found it obvious to provide a differing characteristic, so that one alarm could be discerned from the other, for the self-evident advantages thereof.

We therefore conclude that the combined teachings of the three references establish a *prima facie* case of obviousness with regard to the subject matter of claim 10, and we will sustain the rejection.



Appeal No. 96-0935  
Application 08/157,737

Claim 11, having been grouped by the appellants with claim 10, falls therewith.

Claim 13 adds to claims 10 and 11 the requirement that the method also include determining if a component failure exists. As we stated above, such is taught by the primary reference, Bowman, and therefore a *prima facie* case of obviousness has been established with regard to the subject matter of claim 13, and the rejection of claims 13/10 and 13/11 is sustained. Claim 14 has been grouped with claim 13, and the rejection of claims 14/13/10 and 14/13/11 also is sustained.

We have, of course, carefully considered all of the appellants' arguments. However, they have not convinced us that the decision of the examiner was in error. Our position with regard to the various arguments should be apparent from the foregoing recitation. We additionally note that, for the most part, the appellants have attacked the showings in individual references, however, the rejection is based upon a combination of references. See *In re Young*, 403 F.2d 754, 757, 159 USPQ 725, 728 (CCPA 1968). Finally, it is our conclusion that the teaching in Bowman of sensing the proper operating levels of switches is tantamount to determining component failure, for if the levels are incorrect, the component has failed.

Appeal No. 96-0935  
Application 08/157,737

All of the rejections are sustained.

The decision of the examiner is affirmed.

No time period for taking any subsequent action in  
connection with this appeal may be extended under 37 CFR  
§ 1.136(a).

**AFFIRMED**

NEAL E. ABRAMS	)	
Administrative Patent Judge)	)	
	)	
	)	
LAWRENCE J. STAAB	)	BOARD OF PATENT
Administrative Patent Judge)	)	APPEALS AND
	)	INTERFERENCES
	)	
JOHN P. McQUADE	)	
Administrative Patent Judge)	)	

Appeal No. 96-0935  
Application 08/157,737

John L. Rooney  
Nawrocki, Rooney & Sivertson  
Suite 401, Broadway Place East  
3433 Broadway St. Northeast  
Minneapolis, MN 55413